

Remarks

The Office Action dated February 14, 2006 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-17 and 19-29 are now pending in this application. Claims 1-17 and 19-29 stand rejected. Claim 18 has been canceled.

The rejection of Claims 1, 3-5, and 7-12 under 35 U.S.C. § 102(b) as being anticipated by Kojima et al. (U.S. Patent Application No. 2003/0128801) "Kojima" is respectfully traversed.

Kojima describes a radiological imaging apparatus that includes a radiation detector ring structure consisting of a plurality of radiation detectors arranged in a ring form for detecting radiation from the examinee. An X-ray source moves in a circumferential direction of the through hole section along a ring-shaped guide rail provided on the casing. Each radiation detector outputs both an X-ray detection signal which is a detection signal of X-rays that have passed through the examinee and a γ -ray detection signal which is a detection signal of γ -rays radiated from the examinee caused by radiopharmaceutical. A computer creates an X-ray computed tomographic image data based on the X-ray detection signal and a PET image data based on the γ -ray detection signal and creates fused tomographic image data using the X-ray computed tomographic image data and the PET image data.

Claim 1 recites a method of examining a patient wherein the method includes "aligning a patient table in an opening of a gantry that includes a CZT photon detector and an x-ray source...imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector...imaging a patient utilizing a second imaging modality during a second portion of the scan using the CZT detector wherein the second imaging modality is different than the first imaging modality...imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector."

Kojima does not describe nor suggest a method of examining a patient as recited in Claim 1. Specifically, Kojima does not describe nor suggest imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging a patient utilizing a second imaging modality during a second portion of the scan using the CZT

detector, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention, Kojima describes a signal discriminator to separate γ -ray image pickup signal and x-ray image pickup signal having different energy corresponding to a peak count rate from the image pickup signal which is the output of the radiation detectors, but Kojima does not describe nor suggest imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging a patient utilizing a second imaging modality during a second portion of the scan using the CZT detector, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Moreover, Kojima describes that when the X-ray computed tomographic inspection is finished, the drive controller outputs a drive stop signal ending the inspection and that each radiation detector detects the X-rays radiated from the X-ray source and passing through the body of the examinee and the γ -rays radiated from the affected area caused by the PET radiopharmaceutical. Then, each radiation detector outputs an output signal including both an X-ray image pickup signal and a γ -ray image pickup signal, but Kojima does not describe nor suggest alternating between different modalities for conducting portions of a respective scans. Rather, in contrast to the present invention Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Kojima.

Claims 3-5, and 7-12 depend from independent Claim 1. When the recitations of Claims 3-5, and 7-12 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 3-5, and 7-12 likewise are patentable over Kojima.

The rejection of Claims 2, 14, 15, 17, 24-26, and 29 under 35 U.S.C. § 103(a) as being unpatentable over Kojima et al. (U.S. Patent Application No. 2002/0191734) "Kojima" in view of Silver et al. (U.S. Patent 6,466,638) "Silver" and Ashburn (U.S. Patent 6,147,352) is respectfully traversed.

Kojima is described above. Silver describes a method and system for reconstructing an x-ray image through mapping. The system rotates an x-ray source and an x-ray detector in an irregular path. A calibration factor matrix for each position of a source and detector is calculated using a calibration phantom and then stored for use during reconstruction. The

image is reconstructed by mapping a reprojected image point from a known coordinate using the calibration factors. The mapping takes into consideration the non-idealities in the irregular path, improving the image reconstruction.

Ashburn describes a single photon emission computer tomography (SPECT) imager including an arcuate detector carrier encompassing at least 180° of arc about an examination axis through a target area of the patient. One or more scintillation detectors are carried by the detector carrier for taking a plurality of readings of γ -ray emissions from the radionuclide. While the plurality of readings are taken, the carrier remains substantially immobile relative to the patient.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Kojima according to the teachings of Silver and Ashburn. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.” In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, “it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’

disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although Applicants agree with the assessment in the Office Action that Kojima does not describe and fails to teach or fairly suggest the gantry comprising a C-arm unit, Applicants respectfully disagree with the assertion that Kojima describes imaging a patient utilizing a first imaging modality during a first portion of a scan, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality. As such, the combination of Kojima and Silver collectively fails to teach each of the elements of the claimed invention. For at least the reasons set forth above, Claim 2 is submitted to be patentable over Kojima in view of Silver and Ashburn.

Applicants also submit that Silver and Ashburn are non-analogous art that are not relevant to the Kojima application. More specifically, Silver describes a cone beam CT systems implemented using a C-arm to support only an x-ray source device and an x-ray detection device. Although Silver mentions the system operates by emitting x-rays that then pass through a subject, are detected and exposure data is collected by the processing system wherein an image is reconstructed using a mapping technique with calibration factors that compensate for non-idealities in the C-arm gantry motion, Silver does not address issues related to a multi-modality imaging system such as performing a portion of a scan using a first modality, performing another portion of the scan using a second modality, and performing another portion of the scan using the first modality again. Silver only describes a single detector mounted on the C-arm and that the system is only operable in a single modality, namely CT. Similarly, Ashburn only describes a C-arm system that is capable of performing only one modality of imaging, in this case, SPECT. Merely combining disclosures that includes certain features of the present invention does not describe nor suggest a motivation to combine the disclosure nor indicate a reasonable chance of success.

Given the obvious differences between a cone beam CT system implemented using a

C-arm to support only an x-ray source device and an x-ray detection device, a SPECT system implemented using a C-arm to support only a SPECT detector, and a multi-modality imaging system discriminates between x-rays and γ -rays to perform scans simultaneously, and the fact that the systems described by Silver and Ashburn neither recognizes nor solves any of the problems addressed by the Kojima application, it is respectfully submitted that Silver and Ashburn is non-analogous art that would not be looked to for potential solutions in a multi-modality imaging system and therefore there is no motivation to combine Silver and Ashburn with Kojima.

Moreover, Applicants submit that there is no teaching nor suggestion in the cited art for the claimed combination, and as such, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Specifically, Kojima is cited for its alleged teaching of the claimed invention except for a C-arm gantry, and Silver and Ashburn are cited for their teaching of a C-arm gantry. Of course, such a combination, based on hindsight reconstruction, is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claim 2 be withdrawn.

Furthermore, Applicants respectfully submit that no motivation for the combination can be found within Kojima, Silver, and Ashburn, as Kojima and Silver and Ashburn teach away from each other. Specifically, Kojima describe a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and Silver describe an CT imaging system that uses a C-arm gantry and Ashburn merely describes a SPECT imaging system that uses a C-arm gantry.

If art “teaches away” from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. More specifically, Applicants respectfully submit that Kojima teaches away from Silver, and as such, there is no suggestion or motivation to combine Kojima with Silver.

Moreover, no combination of Kojima, Silver, and Ashburn describes or suggests the claimed combination, and as such, the presently pending claims are patentably

distinguishable from the cited combination. Specifically, Claim 1 recites a method of examining a patient wherein the method includes “aligning a patient table in an opening of a gantry that includes a CZT photon detector and an x-ray source...imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector...imaging the patient utilizing a second imaging modality during a second portion of the scan using the CZT detector wherein the second imaging modality is different than the first imaging modality...imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector.”

None of Kojima, Silver, nor Ashburn considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality, Silver describes an CT imaging system that uses a C-arm gantry, and Ashburn describes a SPECT imaging system that uses a C-arm gantry but none of Kojima, Silver, nor Ashburn, considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Kojima in view of Silver and Ashburn.

Claim 2 depends from independent Claim 1. When the recitations of Claim 2 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 2 likewise is patentable over Kojima in view of Silver and Ashburn.

Claim 14 recites an imaging system including “a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions.”

None of Kojima, Silver, nor Ashburn considered alone or in combination, describe or suggest an imaging system as is recited in Claim 14. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality, Silver describes an CT imaging system that uses a C-arm gantry, and Ashburn describes a SPECT imaging system that uses a C-arm gantry but none of Kojima, Silver, nor Ashburn, considered alone or in combination, describe or suggest an imaging system including a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. For at least the reasons set forth above, Claim 14 is submitted to be patentable over Kojima in view of Silver and Ashburn.

Claims 15, 17 and 24-26 and 29 depend from independent Claim 14. When the recitations of Claims 15, 17 and 24-26 and 29 are considered in combination with the recitations of Claim 14, Applicants submit that dependent Claims 15, 17 and 24-26 and 29 likewise are patentable over Kojima in view of Silver and Ashburn.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 2, 15, 17 and 24-26 and 29 be withdrawn.

The rejection of Claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Kojima et al. (U.S. Patent Application No. 2002/0191734) "Kojima" in view of Besson (U.S. Patent 6,324,247) is respectfully traversed.

Kojima is described above. Besson describes a computed tomography (CT) imaging system including a gantry and a gantry motor controller that controls the rotational speed and position of gantry. The gantry has an x-ray source that projects a beam of x-rays toward a detector array on the opposite side of gantry. Detector array is formed by detector elements which together sense the projected x-rays that pass through an object, for example a medical patient. Detector array may be fabricated in a single slice or multi-slice configuration. Each detector element produces an electrical signal that represents the intensity of an impinging x-ray beam and hence the attenuation of the beam as it passes through patient. During a scan to acquire x-ray projection data, gantry and the components mounted thereon rotate about a

center of rotation.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Kojima according to the teachings of Besson. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.” In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, “it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’ disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although Applicants agree with the assessment in the Office Action that Kojima does not describe and fails to teach or fairly suggest rotating the gantry around a longitudinal axis of the patient table approximately 180° plus the fan angle of rotation, Applicants respectfully disagree with the assertion that Kojima describes imaging a patient utilizing a first imaging modality during a first portion of a scan, imaging the patient utilizing a second imaging

modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality and Besson describes continuously rotating the gantry around the longitudinal axis, for example, during a helical scan, but does not describe rotating a C-arm gantry approximately 180° plus the fan angle of rotation. As such, the combination of Kojima and Besson collectively fails to teach each of the elements of the claimed invention. For at least the reasons set forth above, Claim 6 is submitted to be patentable over Kojima in view of Besson.

Applicants also submit that Besson is non-analogous art that is not relevant to the Kojima application. More specifically, Besson describes a third generation CT system having a gantry that is annular and which rotates continuously about a longitudinal axis of a patient table. Besson does not address issues related to a rotating a multi-modality imaging system about a patient using a c-arm gantry or performing a portion of a scan using a first modality, performing another portion of the scan using a second modality, and performing another portion of the scan using the first modality again. Besson only describes a continuously rotating CT system that is only operable in a single modality, namely CT. Merely combining disclosures that includes certain features of the present invention does not describe nor suggest a motivation to combine the disclosure nor indicate a reasonable chance of success.

Given the obvious differences between a continuously rotating third generation CT system and a multi-modality imaging system discriminates between x-rays and γ -rays to perform scans simultaneously, and the fact that the system described by Besson neither recognizes nor solves any of the problems addressed by the Kojima application, it is respectfully submitted that Besson is non-analogous art that would not be looked to for potential solutions in a multi-modality imaging system and therefore there is no motivation to combine Besson with Kojima.

Moreover, Applicants submit that there is no teaching nor suggestion in the cited art for the claimed combination, and as such, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an

attempt to deprecate the present invention. Specifically, Kojima is cited for its alleged teaching of the claimed invention except for rotating the gantry around a longitudinal axis of the patient table approximately 180° plus the fan angle of rotation, and Besson is cited for its teaching of rotating the gantry around a longitudinal axis of the patient table. However, Besson describes a system that continuously rotates around a longitudinal axis of the patient table. Of course, such a combination, based on hindsight reconstruction, is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claim 6 be withdrawn.

Furthermore, Applicants respectfully submit that no motivation for the combination can be found within Kojima and Besson as Kojima and Besson teach away from each other. Specifically, Kojima describes a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and Besson describe a third generation CT imaging system that uses a continuously rotating gantry.

If art “teaches away” from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. More specifically, Applicants respectfully submit that Kojima teaches away from Besson, and as such, there is no suggestion or motivation to combine Kojima with Besson.

Moreover, no combination of Kojima, Besson describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites a method of examining a patient wherein the method includes “aligning a patient table in an opening of a gantry that includes a CZT photon detector and an x-ray source...imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector...imaging the patient utilizing a second imaging modality during a second portion of the scan using the CZT detector wherein the second imaging modality is different than the first imaging modality...imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector.”

Neither Kojima nor Besson considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality

during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality and Besson describes a continuously rotating annular gantry, but neither Kojima nor Besson, considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Kojima in view of Besson.

Claim 6 depends from independent Claim 1. When the recitations of Claim 6 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 6 likewise is patentable over Kojima in view of Besson.

The rejection of Claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Kojima et al. (U.S. Patent Application No. 2002/0191734) "Kojima" in view of Hsieh et al. (U.S. Patent 6,256,368) is respectfully traversed.

Kojima is described above. Hsieh describes a computed tomography (CT) imaging system for producing CT images of a patient's heart suitable for calcification scoring, in which the heart has a cardiac cycle. Scout-scanned CT images including at least a portion of the patient's heart at different phases of the cardiac cycle are acquired and a difference image from the scout-scanned CT images is determined. An EKG signal of the patient's heart determines trigger times for acquiring the data representative of the images, each at different phases of the cardiac cycle.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Kojima according to the teachings of Hsieh. More specifically, it is respectfully submitted that a prima facie

case of obviousness has not been established. As explained by the Federal Circuit, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.” In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, “it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’ disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although Applicants agree with the assessment in the Office Action that Kojima does not describe and fails to teach or fairly suggest monitoring a cyclic physiological function of the patient and triggering at least one of the first modality and the second modality during at least one preselected portion of the cyclical physiological function, Applicants respectfully disagree with the assertion that Kojima describes imaging a patient utilizing a first imaging modality during a first portion of a scan, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between

signals originating from each modality and Hsieh describes determining a difference image from two scout scan image acquired at different phases of a heart beat using an EKG apparatus, but Hsieh does not describe nor suggest a CZT detector or a modality other than CT. Accordingly, there is no suggestion that the methods described by Hsieh would be successful using a device as is described by Kojima and therefore no motivation to combine the disclosures. Moreover, the combination of Kojima and Hsieh collectively fails to teach each of the elements of the claimed invention. For at least the reasons set forth above, Claim 13 is submitted to be patentable over Kojima in view of Hsieh.

Applicants also submit that Hsieh is non-analogous art that is not relevant to the Kojima application. More specifically, Hsieh describes a third generation CT system having a gantry that is annular and which rotates continuously about a longitudinal axis of a patient table. Hsieh does not address issues related to a rotating a multi-modality imaging system about a patient using a c-arm gantry or performing a portion of a scan using a first modality, performing another portion of the scan using a second modality, and performing another portion of the scan using the first modality again. Hsieh only describes a continuously rotating CT system that is only operable in a single modality, namely CT. Merely combining disclosures that includes certain features of the present invention does not describe nor suggest a motivation to combine the disclosure nor indicate a reasonable chance of success.

Given the obvious differences between a continuously rotating third generation CT system and a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and the fact that the system described by Hsieh neither recognizes nor solves any of the problems addressed by the Kojima application, it is respectfully submitted that Hsieh is non-analogous art that would not be looked to for potential solutions in a multi-modality imaging system and therefore there is no motivation to combine Hsieh with Kojima.

Moreover, Applicants submit that there is no teaching nor suggestion in the cited art for the claimed combination, and as such, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Specifically, Kojima is cited for its alleged teaching of the claimed invention except for rotating the gantry around a longitudinal axis of the patient table approximately 180° plus the fan angle of rotation, and Hsieh is cited for its

teaching of using an EKG monitor to control scanning and acquisition of image data in a CT imaging system. Of course, such a combination, based on hindsight reconstruction, is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claim 13 be withdrawn.

Furthermore, Applicants respectfully submit that no motivation for the combination can be found within Kojima and Hsieh as Kojima and Hsieh teach away from each other. Specifically, Kojima describes a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and Hsieh describe a third generation CT imaging system that uses a continuously rotating gantry.

If art “teaches away” from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. More specifically, Applicants respectfully submit that Kojima teaches away from Hsieh, and as such, there is no suggestion or motivation to combine Kojima with Hsieh.

Moreover, no combination of Kojima, Hsieh describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites a method of examining a patient wherein the method includes “aligning a patient table in an opening of a gantry that includes a CZT photon detector and an x-ray source...imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector...imaging the patient utilizing a second imaging modality during a second portion of the scan using the CZT detector wherein the second imaging modality is different than the first imaging modality...imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector.”

Neither Kojima nor Hsieh considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image

data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality and Hsieh describes a continuously rotating annular gantry, but neither Kojima nor Hsieh, considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Kojima in view of Hsieh.

Claim 13 depends from independent Claim 1. When the recitations of Claim 13 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 13 likewise is patentable over Kojima in view of Hsieh.

The rejection of Claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Kojima, Silver et al., and Ashburn in view of Besson is respectfully traversed.

Kojima, Silver, Ashburn, and Besson are described above.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Kojima, Silver, and Ashburn according to the teachings of Besson. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.” In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, “it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’ disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although Applicants agree with the assessment in the Office Action that Kojima, Silver, and Ashburn does not describe and fails to teach or fairly suggest translating the gantry an angular distance of approximately 180° plus the fan angle of the x-ray source. Applicants respectfully disagree with the assertion that Kojima describes imaging a patient utilizing a first imaging modality during a first portion of a scan, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. Rather, in contrast to the present invention Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality and Besson describes a third generation CT system having a gantry that is annular and which rotates continuously about a longitudinal axis of a patient table. As such, the combination of Kojima, Silver, Ashburn, and Besson collectively fails to teach each of the elements of the claimed invention. For at least the reasons set forth above, Claim 16 is submitted to be patentable over Kojima, Silver, Ashburn, and Besson.

Applicants also submit that Silver, Ashburn, and Besson are non-analogous art that are not relevant to the Kojima application. More specifically, Silver describes a cone beam CT systems implemented using a C-arm to support only an x-ray source device and an x-ray detection device. Although Silver mentions the system operates by emitting x-rays that then pass through a subject, are detected and exposure data is collected by the processing system wherein an image is reconstructed using a mapping technique with calibration factors that

compensate for non-idealities in the C-arm gantry motion, Silver does not address issues related to a multi-modality imaging system such as performing a portion of a scan using a first modality, performing another portion of the scan using a second modality, and performing another portion of the scan using the first modality again. Silver only describes a single detector mounted on the C-arm and that the system is only operable in a single modality, namely CT. Similarly, Ashburn only describes a C-arm system that is capable of performing only one modality of imaging, in this case, SPECT. Besson describes a third generation CT system having a gantry that is annular and which rotates continuously about a longitudinal axis of a patient table. Besson also does not address issues related to a rotating a multi-modality imaging system about a patient using a c-arm gantry or performing a portion of a scan using a first modality, performing another portion of the scan using a second modality, and performing another portion of the scan using the first modality again. Besson only describes a continuously rotating CT system that is only operable in a single modality, namely CT. Merely combining disclosures that includes certain features of the present invention does not describe nor suggest a motivation to combine the disclosure nor indicate a reasonable chance of success.

Given the obvious differences between a cone beam CT system implemented using a C-arm to support only an x-ray source device and an x-ray detection device, a SPECT system implemented using a C-arm to support only a SPECT detector, and a multi-modality imaging system discriminates between x-rays and γ -rays to perform scans simultaneously, and the fact that the systems described by Silver, Ashburn, and Besson neither recognizes nor solves any of the problems addressed by the Kojima application, it is respectfully submitted that Silver, Ashburn, and Besson is non-analogous art that would not be looked to for potential solutions in a multi-modality imaging system and therefore there is no motivation to combine Silver, Ashburn, and Besson with Kojima.

Moreover, Applicants submit that there is no teaching nor suggestion in the cited art for the claimed combination, and as such, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Specifically, Kojima is cited for its alleged teaching of the claimed invention except for a C-arm gantry, Silver and Ashburn are cited for their teaching of a C-arm gantry, and Besson is cited for its teaching of rotating the gantry

around a longitudinal axis of the patient table. Of course, such a combination, based on hindsight reconstruction, is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claim 16 be withdrawn.

Furthermore, Applicants respectfully submit that no motivation for the combination can be found within Kojima, Silver, Ashburn, and Besson as Kojima, Silver, Ashburn, and Besson teach away from each other. Specifically, Kojima describe a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and Silver describe an CT imaging system that uses a C-arm gantry, Ashburn merely describes a SPECT imaging system that uses a C-arm gantry, and Besson describes continuously rotating the gantry around a longitudinal axis of the patient table.

If art “teaches away” from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. More specifically, Applicants respectfully submit that Kojima, Silver, Ashburn, and Besson teaches away from each other, and as such, there is no suggestion or motivation to combine Kojima, Silver, Ashburn, and Besson.

Moreover, no combination of Kojima, Silver, Ashburn, and Besson describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 14 recites an imaging system including “a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions.”

None of Kojima, Silver, Ashburn, and Besson considered alone or in combination, describe or suggest an imaging system as is recited in Claim 14. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality, Silver describes an CT imaging system that uses a C-arm gantry, Ashburn describes a SPECT imaging system that uses a C-arm gantry, and Besson

describes continuously rotating the gantry around the longitudinal axis, for example, during a helical scan, but none of Kojima, Silver, Ashburn, and Besson, considered alone or in combination, describe or suggest a method of imaging a patient that includes imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector, imaging the patient utilizing a second imaging modality during a second portion of the scan, and imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector. For at least the reasons set forth above, Claim 14 is submitted to be patentable over Kojima, Silver, Ashburn in view of Besson.

Claim 16 depends from independent Claim 14. When the recitations of Claim 16 are considered in combination with the recitations of Claim 14, Applicants submit that dependent Claim 16 likewise is patentable over Kojima, Silver, Ashburn in view of Besson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claim 16 be withdrawn.

The rejection of Claims 14 and 19-23 under 35 U.S.C. § 103(a) as being unpatentable over Kojima et al. (U.S. Patent Application No. 2002/0191734) "Kojima" in view of Silver et al. (U.S. Patent 6,466,638) "Silver" and Yamakawa (U.S. Patent 6,373,060) is respectfully traversed.

Kojima and Silver are described above.

Yamakawa describes a radiation detecting system including a base section (180), a support post (181), a C-shaped arm (182), two radiation detectors (130) and (131), and a chair (185). The post (181) stands on the base section (180). The arm (182) is secured to the support post (181) and can move up and down. The radiation detectors (130) and (131) are mounted on the C-shaped arm (182). The chair (185) is of special design, on which a patient may sit. The radiation detector (130) and (131) can be moved along the C-shaped arm (182). The C-shaped arm (182) can be tilted by means of a tilt mechanism (not shown). Chair (185) is adjusted in height, while the patient (P) remain sitting on the chair (185), and the C-shaped arm (182) is moved up or down. After the arms of the patient (P) have been held on arm rests, the radiation detectors (130) and (131) are set close to, for example, the heart of the patient (P). Notably, Yamakawa does not describe nor suggest a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and

second imaging positions. Firstly, Yamakawa does not describe nor suggest an x-ray source at all and Yamakawa only describes that the detector can be moved along the C-shaped arm to put the detector in only one imaging position close to, for example, the heart of the patient. Yamakawa does not describe nor suggest an image acquisition path between at least first and second imaging positions.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Kojima according to the teachings of Silver and Yamakawa. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.” In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, “it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’ disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although Applicants agree with the assessment in the Office Action that Kojima and

Silver does not describe and fails to teach or fairly suggest a SPECT system using a C-arm gantry. Applicants respectfully disagree with the assertion that Kojima and Silver describes a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. Applicants further traverse the assertion in the Office Action that Yamakawa discloses a C-arm gantry within a SPECT system. Rather, in contrast to the present invention Yamakawa describes radiation detectors mounted on a C-shaped arm that is merely a support arm that is not configured to move an x-ray source and detector along an image acquisition path between at least first and second imaging positions. As such, the combination of Kojima, Silver, and Yamakawa collectively fails to teach each of the elements of the claimed invention. For at least the reasons set forth above, Claim 14 is submitted to be patentable over Kojima in view of Silver and Yamakawa.

Applicants also submit that Silver and Yamakawa are non-analogous art that are not relevant to the Kojima application. More specifically, Silver describes a cone beam CT systems implemented using a C-arm to support only an x-ray source device and an x-ray detection device. Although Silver mentions the system operates by emitting x-rays that then pass through a subject, are detected and exposure data is collected by the processing system wherein an image is reconstructed using a mapping technique with calibration factors that compensate for non-idealities in the C-arm gantry motion, Silver and Yamakawa do not address issues related to a multi-modality imaging system that includes a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. Silver only describes a single detector mounted on the C-arm and that the system is only operable in a single modality, namely CT. Similarly, Yamakawa only describes a C-arm system that is capable of performing only one modality of imaging, in this case, SPECT and is not configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. Merely combining disclosures that includes certain features of the present invention does not describe nor suggest a motivation to combine the disclosure nor indicate a reasonable chance of success.

Given the obvious differences between a cone beam CT system implemented using a C-arm to support only an x-ray source device and an x-ray detection device, a SPECT system

implemented using a C-arm to support only a SPECT detector, and a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and the fact that the systems described by Silver and Yamakawa neither recognizes nor solves any of the problems addressed by the Kojima application, it is respectfully submitted that Silver and Yamakawa is non-analogous art that would not be looked to for potential solutions in a multi-modality imaging system and therefore there is no motivation to combine Silver and Yamakawa with Kojima.

Moreover, Applicants submit that there is no teaching nor suggestion in the cited art for the claimed combination, and as such, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Specifically, Kojima and Silver are cited for their alleged teaching of the claimed invention except for a SPECT system using a C-arm gantry, and Yamakawa is cited for using a C-arm gantry with a SPECT system. However the C-arm described by Yamakawa is merely a support that is not configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. Of course, such a combination, based on hindsight reconstruction, is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 14 and 19-23 be withdrawn.

Furthermore, Applicants respectfully submit that no motivation for the combination can be found within Kojima, Silver, and Yamakawa, as Kojima and Silver and Yamakawa teach away from each other. Specifically, Kojima describe a multi-modality imaging system that discriminates between x-rays and γ -rays to perform scans simultaneously, and Silver describe an CT imaging system that uses a C-arm gantry and Yamakawa merely describes a SPECT imaging system that uses a C-arm gantry.

If art “teaches away” from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. More specifically, Applicants respectfully submit that Kojima, Silver, and Yamakawa teaches away from each other, and as such, there is no suggestion or motivation to combine Kojima, Silver, and Yamakawa.

Moreover, no combination of Kojima, Silver, and Yamakawa describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 14 recites an imaging system including “a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions.”

None of Kojima, Silver, nor Yamakawa considered alone or in combination, describe or suggest an imaging system as is recited in Claim 14. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality, Silver describes an CT imaging system that uses a C-arm gantry, and Yamakawa describes a SPECT imaging system that uses a C-arm gantry but none of Kojima, Silver, nor Yamakawa, considered alone or in combination, describe or suggest an imaging system including a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. For at least the reasons set forth above, Claim 14 is submitted to be patentable over Kojima in view of Silver and Yamakawa.

Claims 19-23 depend from independent Claim 14. When the recitations of Claims 19-23 are considered in combination with the recitations of Claim 14, Applicants submit that dependent Claims 19-23 likewise are patentable over Kojima in view of Silver and Yamakawa.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 19-23 be withdrawn.

The rejection of Claims 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Kojima, Silver, and Ashburn and further in view of Ivan et al. (U.S. Patent 6,364,526) is respectfully traversed.

Kojima, Silver, and Ashburn are described above. Ivan describes an diagnostic imaging system, such as a CT scanner, that includes a gantry. An integrated fluoroscopy or

fluoro-assist device is secured to the gantry for movement between an operating position and a stored position. The fluoro-assist device includes a C-arm that is movably secured to either side of the gantry via a mounting structure. A fluoroscopic x-ray source or tube is secured proximate a first end of the C-arm and an opposing x-ray detector is secured proximate a second end of the C-arm. The x-ray source and detector cooperate to define a fluoroscopic imaging subsystem of the diagnostic scanner. The C-arm can be a stand-alone device which is mounted near the gantry. Specifically, the C-arm is suspended from a ceiling via a mounting structure such as an overhead track system including first rails, and transverse rails which are movable along the first rails.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been an obvious to one of ordinary skill in the art to modify Kojima according to the teachings of Silver and Ashburn. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.” In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, “it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants’

disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although Applicants agree with the assessment in the Office Action that Kojima, Silver, and Ashburn do not describe and fails to teach or fairly suggest the gantry support base coupled to a rail system, Applicants respectfully disagree with the assertion that Kojima, Silver, and Ashburn describes a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. Rather, in contrast to the present invention Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality, Silver describes a CT imaging system that uses a C-arm gantry, Ashburn describes a SPECT imaging system that uses a C-arm gantry, and Ivan describes a C-arm positionable to support a fluoroscopy source and detector. As such, the combination of Kojima, Silver, Ashburn, and Ivan collectively fails to teach each of the elements of the claimed invention. For at least the reasons set forth above, Claims 27 and 28 are submitted to be patentable over Kojima, Silver, and Ashburn in view of Ivan.

Applicants also submit that Silver and Ashburn are non-analogous art that are not relevant to the Kojima application. More specifically, Silver describes a cone beam CT systems implemented using a C-arm to support only an x-ray source device and an x-ray detection device. Although Silver mentions the system operates by emitting x-rays that then pass through a subject, are detected and exposure data is collected by the processing system wherein an image is reconstructed using a mapping technique with calibration factors that compensate for non-idealities in the C-arm gantry motion, Silver does not address issues related to a multi-modality imaging system such as performing a portion of a scan using a first modality, performing another portion of the scan using a second modality, and performing another portion of the scan using the first modality again. Silver only describes a single detector mounted on the C-arm and that the system is only operable in a single modality, namely CT. Similarly, Ashburn only describes a C-arm system that is capable of performing only one modality of imaging, in this case, SPECT, and Ivan merely describes

mounting a fluoroscopy system that us separate the first modality, on a track system. Merely combining disclosures that includes certain features of the present invention does not describe nor suggest a motivation to combine the disclosure nor indicate a reasonable chance of success.

Given the obvious differences between a cone beam CT system implemented using a C-arm to support only an x-ray source device and an x-ray detection device, a SPECT system implemented using a C-arm to support only a SPECT detector, and a multi-modality imaging system discriminates between x-rays and γ -rays to perform scans simultaneously, and the fact that the systems described by Silver, Ashburn, and Ivan neither recognizes nor solves any of the problems addressed by the Kojima application, it is respectfully submitted that Silver, Ashburn, and Ivan is non-analogous art that would not be looked to for potential solutions in a multi-modality imaging system and therefore there is no motivation to combine Silver, Ashburn, and Ivan with Kojima.

Moreover, Applicants submit that there is no teaching nor suggestion in the cited art for the claimed combination, and as such, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Specifically, Kojima, Silver, and Ashburn are cited for its alleged teaching of the claimed invention except for a gantry support base coupled to a rail system, and Ivan is cited for their teaching of a C-arm mounted to a ceiling track system to support a fluoroscopy system. Of course, such a combination, based on hindsight reconstruction, is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 27 and 28 be withdrawn.

Moreover, no combination of Kojima, Silver, Ashburn, and Ivan describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 14 recites an imaging system including “a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions.”

None of Kojima, Silver, Ashburn, and Ivan considered alone or in combination,

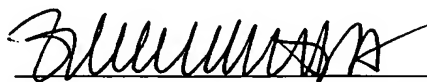
describe or suggest an imaging system as is recited in Claim 14. Rather, in contrast to the present invention, Kojima describes simultaneous inspections acquiring image data from two modalities at the same time and using a discrimination to differentiate between signals originating from each modality, Silver describes an CT imaging system that uses a C-arm gantry, Ashburn describes a SPECT imaging system that uses a C-arm gantry, and Ivan describes mounting a fluoroscopy system to a track system on the ceiling, but none of Kojima, Silver, nor Ashburn, considered alone or in combination, describe or suggest an imaging system including a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions. For at least the reasons set forth above, Claim 14 is submitted to be patentable over Kojima, Silver, Ashburn, and further in view of Ivan.

Claims 27 and 28 depend from independent Claim 14. When the recitations of Claims 27 and 28 are considered in combination with the recitations of Claim 14, Applicants submit that dependent Claims 27 and 28 likewise are patentable over Kojima, Silver, Ashburn, and further in view of Ivan.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 27 and 28 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,



William J. Zychlewicz, Reg. No. 51,366
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070